

WE CLAIM:

1. A method of receiving a field, wherein the field comprises E-VSB data segments containing E-VSB data
5 and VSB data segments containing VSB data, the method comprising:

receiving the field containing a map that designates the data segment mix contained in the received field;

10 decoding the received map to determine the number of E-VSB data segments in the received field;

determining the locations of at least the E-VSB data segments in the received field according to the following expression:

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$$s = \text{Int}(k * 156 / P) \quad \text{for } k = 0 \text{ to } k = (2 * P - 1)$$

wherein P is the number of E-VSB data segments in the received field divided by two, wherein s designates
20 segment number, wherein Int designates a rounding down operation, and wherein k varies from 0 to $2 * P - 1$; and,
separating at least one of the received E-VSB and VSB data segments according to the segment number s.

2. The method of claim 1 wherein the determining of the locations of at least the E-VSB data segments in the received field comprises implementing the following algorithm:

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$$s = \text{Int}(k \cdot 156 / P) \quad \text{for } k = 0 \text{ to } k = (2 \cdot P - 1).$$

3. The method of claim 1 wherein the determining of the locations of at least the E-VSB data segments in the received field comprises implementing the following algorithm:

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$$m = 156 / P$$
$$s = \text{Int}(k \cdot m), \quad \text{for } k = 0, \dots, (2 \cdot P - 1).$$

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4. The method of claim 1 wherein the E-VSB data segments comprise first and second E-VSB data segments, wherein the first and second E-VSB data segments contain data coded at two different E-VSB coding rates respectively, and wherein the separating of at least one of the received E-VSB and VSB data segments comprises separating at least one of the received first and second E-VSB data segments and the VSB data segments.

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5. A method of transmitting a field, wherein the field comprises E-VSB data segments and VSB data segments, wherein the E-VSB data segments contain E-VSB data, and wherein the VSB data segments contain VSB data,
5 the method comprising:

generating a map for the field, wherein the map defines the number of the E-VSB data segments in the field;

inserting the map into the field;

10 inserting data into at least the E-VSB data segments of the field in accordance with segment numbers s , wherein s is determined according to the following expression:

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$$s = \text{Int}(k * 156 / P) \quad \text{for } k = 0 \text{ to } k = (2 * P - 1)$$

wherein P is the number of E-VSB segments in the corresponding field divided by two, wherein Int designates a rounding down operation, and wherein k
20 varies from 0 to $2 * P - 1$; and,

transmitting the field.

6. The method of claim 5 wherein the inserting of data into at least the E-VSB data segments of the field comprises implementing the following algorithm:

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$$s = \text{Int}(k \cdot 156 / P) \quad \text{for } k = 0 \text{ to } k = (2 \cdot P - 1).$$

7. The method of claim 5 wherein the inserting of data into at least the E-VSB data segments
10 of the field comprises implementing the following algorithm:

$$m = 156 / P$$
$$s = \text{Int}(k \cdot m), \quad \text{for } k = 0, \dots, (2 \cdot P - 1).$$

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8. The method of claim 5 wherein the E-VSB data segments comprise first and second E-VSB data segments, and wherein the first and second E-VSB data segments contain data coded at two different E-VSB coding
20 rates respectively.

9. A method of receiving a field, the field containing a number of E-VSB data segments and a number of VSB data segments, the method comprising:

receiving the field containing a map that
5 indicates at least the number of E-VSB data segments contained in the received field;

determining the locations of at least the E-VSB data segments in the received field based on a distribution of the E-VSB data segments in which the
10 spacing between E-VSB segments comprises only x and $x + 1$, wherein x is dependent on the number of E-VSB data segments in the field as indicated by the map; and,

separating the received E-VSB data segments and the VSB data segments according to the determined
15 locations.

10. The method of claim 9 wherein the determining of the locations of at least the E-VSB data segments in the received field comprises implementing the
20 following algorithm:

$s = \text{Int}(k * 156 / P)$ for $k = 0$ to $k = (2 * P - 1)$

wherein P is the number of E-VSB data segments in the received field divided by two, wherein s designates segment number, wherein Int designates a rounding down operation, and wherein k varies from 0 to $2*P - 1$.

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11. The method of claim 9 wherein the determining of the locations of at least the E-VSB data segments in the received field comprises implementing the following algorithm:

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$$m = 156/P$$

$$s = \text{Int}(k*m), \text{ for } k = 0, . . . , (2*P - 1)$$

wherein P is the number of E-VSB data segments in the received field divided by two, wherein s designates segment number, wherein Int designates a rounding down operation, and wherein k varies from 0 to $2*P - 1$.

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12. The method of claim 9 wherein the E-VSB data segments comprise first and second E-VSB data segments, wherein the first and second E-VSB data segments contain data coded at two different E-VSB coding rates respectively, and wherein the separating of the received E-VSB and VSB data segments comprises separating

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at least one of the received first and second E-VSB data segments and the VSB data segments.

13. A method of transmitting a field
5 containing a number of E-VSB data segments and a number of VSB data segments, the method comprising:
generating a map for the field, wherein the map indicates at least the number of E-VSB data segments in the field;
10 inserting the map into the field;
inserting data into at least the E-VSB data segments of the field in accordance with segment numbers s , wherein the spacing between segment numbers s comprises only x and $x + 1$, and wherein x is dependent on
15 the number of E-VSB data segments in the field as indicated by the map; and,
transmitting the field.

14. The method of claim 13 wherein the
20 inserting of data into at least the E-VSB data segments of the field comprises implementing the following algorithm:

$s = \text{Int}(k * 156 / P)$ for $k = 0$ to $k = (2 * P - 1)$

wherein P is the number of E-VSB data segments in the received field divided by two, wherein Int designates a rounding down operation, and wherein k varies from 0 to
5 $2 \cdot P - 1$.

15. The method of claim 13 wherein the inserting of data into at least the E-VSB data segments of the field comprises implementing the following
10 algorithm:

$$m = 156/P$$
$$s = \text{Int}(k \cdot m), \text{ for } k = 0, \dots, (2 \cdot P - 1)$$

15 wherein P is the number of E-VSB data segments in the received field divided by two, wherein Int designates a rounding down operation, and wherein k varies from 0 to $2 \cdot P - 1$.

20 16. The method of claim 13 wherein the E-VSB data segments comprise first and second E-VSB data segments, and wherein the first and second E-VSB data segments contain data coded at two different E-VSB coding rates respectively.

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